

**Translation**

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference <b>FIN 480 PCT</b>	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. <b>PCT/DE2004/001145</b>	International filing date (day/month/year) <b>04.06.2004</b>	Priority date (day/month/year) <b>27.06.2003</b>
International Patent Classification (IPC) or national classification and IPC		
Applicant <b>INFINEON TECHNOLOGIES AG</b>		

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (sent to the applicant and to the International Bureau) a total of <u>5</u> sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>	
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>	

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/DE2004/001145

Box No. I

Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_ which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 2-14 as originally filed/furnished
- pages\* 1, 1a received by this Authority on 28.04.2005 with letter of 27.04.2005
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 1-8 received by this Authority on 28.04.2005 with letter of 27.04.2005
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the drawings:
- sheets 1/6-6/6 as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/DE2004/001145

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1. Statement			
Novelty (N)	Claims	1-8	YES
	Claims		NO
Inventive step (IS)	Claims	1-8	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-8	YES
	Claims		NO
2. Citations and explanations (Rule 70.7)			
<p>This report makes reference to the following documents:</p>			
<p>D1: PATENT ABSTRACTS OF JAPAN vol. 0102, no. 79 (E-439), 20 September 1986 (1986-09-20) &amp; JP 61 099361 A (FUJITSU LTD), 17 May 1986 (1986-05-17)</p>			
<p>D3: EP-A-0 340 997 (XEROX CORP) 8 November 1989 (1989-11-08)</p>			
<p>D5: EP-A-1 223 615 (EIDGENOESS TECH HOCHSCHULE) 17 July 2002 (2002-07-17)</p>			
<p>1. The present application does not meet the requirements of PCT Article 6 because claim 3 is unclear.</p>			
<p>Claim 3 pertains to the use of a device with a casting mould and a casting device. The casting mould is suitable for charging with a plastic comprising fillers in the form of nanoparticles and the casting device is suitable for filling the casting mould so as to form lines comprising nanoparticles with short-circuit paths</p>			

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therebetween. However, these features relate to a process for using this device and to a plastic which can be used, not to the claimed use or to the definition of the device on the basis of its technical features. The features of the device and the definition of the use of the device are therefore unclear.

2. D1, which is considered to represent the prior art closest to the subject matter of claim 1, discloses:

an electronic module having a first (14A) and a second component (14B) with terminal connections (16), a wiring block (12) with contact terminal faces (13) on its outer sides and with lines within its volume, wherein the lines electrically interconnect the contact terminal faces on the outer sides and the two components are arranged on different, non-opposing outer sides of the wiring block and their terminal connections are connected to the contact terminal faces.

The subject matter of claim 1 thus differs from the known module in that the lines comprise nanoparticles with carbonized short-circuit paths between the nanoparticles. Therefore, the subject matter of claim 1 is novel (PCT Article 33(2)).

The problem addressed by the present invention may therefore be considered that of providing a module with a rewiring structure that can be fabricated

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in a cost-effective manner.

The solution to this problem proposed in claim 1 of the present application involves an inventive step (PCT Article 33(3)). The reasons are:

Neither D1 nor any of the further documents cited in the international search report suggests the solution as per claim 1. D3 discloses lines formed of carbonized fibres. However, the fibres have a diameter of 10  $\mu\text{m}$  and are therefore not nanoparticles. D5 discloses lines formed of nanoparticles, but without carbonized short-circuit paths between the nanoparticles. Therefore, the technical feature of the solution as per claim 1 does not belong to the prior art and is non-obvious to a person skilled in the art.

3. The same reasoning applies *mutatis mutandis* to independent claims 3 and 6, which pertain to the use of a device for fabricating a module and a process for fabricating a module, wherein the lines comprise nanoparticles with carbonized short-circuit paths between the nanoparticles.
4. Claims 2, 4, 5, 7 and 8 are dependent on claims 1, 3 and 6 and therefore likewise meet the PCT requirements for novelty and inventive step.